AMENDMENTS TO THE CLAIMS

1.   (Currently Amended) In a system that shares ~~a~~ performance monitoring ~~units~~ unit between multiple execution units, a method comprising:

receiving a request from a execution unit of the multiple execution units to ~~at least one of~~ start ~~and~~ or stop performance monitoring operation of the execution unit;

maintaining a correct sequence of requests to start and stop performance monitoring operation by ensuring each stop request corresponds to and follows a corresponding start request for the same execution unit;

performing arbitration to acquire exclusive execution for one of ~~a plurality of request initiators~~ the multiple execution units based on predetermined criteria and in response to multiple requests to start and stop performance monitoring being received substantially simultaneously;

allocating a request to start performance monitoring operation based on the correct sequence of requests;

determining a total number of allocated requests to start performance monitoring operation;

initiating performance monitoring operation;

removing a request to start performance monitoring operation;

determining an active mode of performance monitoring operation; and

completing performance monitoring operation.

2.   (Currently Amended) The method of claim 1, wherein maintaining the correct sequence of requests comprises ~~ensuring that the stop request follows the start request for the~~

~~same execution unit, and additional requests are ignored~~ ignoring any stop request that does not follow a corresponding start request for the same execution unit.

3.   (Original)   The method of claim 1, wherein allocating the request comprises indicating to the system that a request to start performance monitoring operation is pending for a specific execution unit.

4.   (Original)   The method of claim 1, wherein allocating the request and initiating of performance monitoring operation are performed if a request to start performance monitoring operation was received.

5.   (Original)   The method of claim 1, wherein removing the request comprises indicating to the system that no request to start performance monitoring operation is pending for the current execution unit.

6.   (Original)   The method of claim 1, wherein removing the request, determining active mode, and completing of performance monitoring operation are performed if a request to stop performance monitoring operation was received.

7.   (Original)   The method of claim 1, wherein initiating performance monitoring operation comprises programming the performance monitoring unit to start collecting performance data for the execution unit that requested said operation if no other request was previously allocated.

8. (Original) The method of claim 7, further comprising at least one of setting an initial performance value to the current value of performance monitoring unit counter and setting the initial performance value and the performance monitoring unit counter to a predefined value.

9. (Currently Amended) The method of claim 1, wherein initiating performance monitoring operation further comprises programming the performance monitoring unit to start collecting performance data for the execution unit that requested[[.]] said operation, in addition to collecting performance data of other execution units of the multiple execution units that which previously requested said operation if there are other requests previously allocated.

10. (Original) The method of claim 1, wherein determining the active mode of performance monitoring operation comprises detecting whether programming of performance monitoring unit was performed for the execution unit that requested to stop performance monitoring operation.

11. (Original) The method of claim 1, wherein completing performance monitoring operation comprises retrieving final performance data and programming the performance monitoring unit to stop collecting of performance data if no other requests for the performance monitoring unit are allocated.

12. (Currently Amended) The method of claim 1, wherein completing performance monitoring operation further comprises programming the performance monitoring unit to stop

collecting ~~of~~ performance data for the execution unit that requested said operation <u>in response to</u> <u>a stop request from the execution unit</u>, if there are other requests previously allocated and the performance monitoring unit was in active mode for the execution unit.

13.   (Original)   The method of claim 12, further comprising retrieving current performance data, setting the initial performance value equal to the value retrieved or reprogramming the performance monitoring unit to start counting from a predefined value and setting the initial performance value equal to the predefined value.

14.   (Original)   The method of claim 12, further comprising: selecting another execution unit; programming the performance monitoring unit to start collecting performance data for the selected execution unit.

15.   (Original)   The method of claim 14, wherein selecting another execution unit comprises selecting, by external means, of a request previously allocated by another execution unit and determining the execution unit that allocated said request.

16.   (Original)   The method of claim 14, wherein programming the performance monitoring unit further comprises enabling performance data collection for the selected execution unit in addition to performance data of other execution units which previously requested said operation.

17.   (Currently Amended) An article comprising: a ~~non-transitive,~~ machine accessible medium having a plurality of machine readable instructions, wherein when the instructions are executed by a processor, the instructions provide for sharing of <u>a</u> performance monitoring ~~units~~ <u>unit</u> between multiple execution units by:

receiving a request from an execution unit <u>of the multiple execution units</u> to ~~at least one of~~ start ~~and~~ <u>or</u> stop performance monitoring operation <u>of the execution unit</u>;

maintaining a correct sequence of requests to start and stop performance monitoring operation <u>by ensuring each stop request corresponds to and follows a corresponding start request for the same execution unit</u>;

performing arbitration to acquire exclusive execution for one of ~~a plurality of request initiators~~ <u>the multiple execution units based on predetermined criteria and in response to multiple requests to start and stop performance monitoring being received substantially simultaneously</u>;

allocating a request to start performance monitoring operation <u>based on the correct sequence of requests</u>;

determining a <u>total</u> number of allocated requests to start performance monitoring operation;

initiating performance monitoring operation; removing a request to start performance monitoring operation;

determining an active mode of performance monitoring operation; and

completing performance monitoring operation.

18.   (Currently Amended)   The article of claim 17, wherein instructions for maintaining the correct sequence of requests comprise instructions for ~~ensuring that the stop~~

~~request follows the start request for the same execution unit, and additional requests are ignored~~ ignoring any stop request that does not follow a corresponding start request for the same execution unit.

19.   (Original) The article of claim 17, wherein instructions for allocating the request comprise instructions for indicating to the system that a request to start performance monitoring operation is pending for a specific execution unit.

20.   (Original) The article of claim 17, wherein instructions for allocating the request and initiating of performance monitoring operation are executed if a request to start performance monitoring operation was received.

21.   (Original) The article of claim 17, wherein instructions for removing the request comprise instructions for indicating to the system that no request to start performance monitoring operation is pending for the current execution unit.

22.   (Original) The article of claim 17, wherein instructions for removing the request, determining active mode, and completing of performance monitoring operation are executed if a request to stop performance monitoring operation was received.

23.   (Original) The article of claim 17, wherein instructions for initiating performance monitoring operation comprise instructions for programming the performance monitoring unit to

start collecting performance data for the execution unit that requested said operation if no other request was previously allocated.

24.   (Original) The article of claim 23, further comprising instructions for at least one of setting an initial performance value to the current value of a performance monitoring unit counter and setting the initial performance value and the performance monitoring unit counter to a predefined value.

25.   (Original) The article of claim 17, wherein instructions for initiating of performance monitoring operation further comprise instructions for programming the performance monitoring unit to start collecting performance data for the execution unit that requested said operation, in addition to performance data of other execution units which previously requested said operation if there are other requests previously allocated.

26.   (Original) The article of claim 17, wherein instructions for determining the active mode of performance monitoring operation comprise instructions for detecting whether programming of performance monitoring unit was performed for the execution unit that requested to stop performance monitoring operation.

27.   (Original) The article of claim 17, wherein instructions for completing performance monitoring operation comprise instructions for retrieving final performance data and programming the performance monitoring unit to stop collecting of performance data if no other requests for the performance monitoring unit are allocated.

28.   (Currently Amended)   The article of claim 17, wherein instructions for completing performance monitoring operation further comprise instructions for programming the performance monitoring unit to stop collecting of performance data for the execution unit that requested said operation in response to a stop request from the execution unit, if there are other requests previously allocated and the performance monitoring unit was in active mode for the current execution unit.

29.   (Original) The article of claim 28, further comprising instructions for retrieving current performance data, setting the initial performance value equal to the value retrieved or reprogramming performance monitoring unit to start counting from a predefined value and setting the initial performance value equal to the predefined value.

30.   (Original) The article of claim 28, further comprising instructions for: selecting another execution unit; programming the performance monitoring unit to start collecting of performance data for the selected execution unit.

31.   (Original) The article of claim 30, wherein instructions for selecting another execution unit comprise instructions for selecting, by external means, of a request previously allocated by another execution unit and determining the execution unit that allocated said request.

32.　　(Original)　The article of claim 30, wherein instructions for programming the performance monitoring unit further comprise instructions for enabling performance data collection for the selected execution unit in addition to performance data of other execution units which previously requested said operation.

33.　　(Currently Amended)　A system that shares ~~units~~ a performance monitoring ~~units~~ unit between multiple execution units comprising:

a processor; and

a memory device communicatively coupled to the processor, the memory device having stored therein a plurality of instructions that, when executed by the processor, cause the processor to:

~~logic to~~ receive a request from an execution unit of the multiple execution units to ~~at least one of~~ start ~~and~~ or stop performance monitoring operation of the execution unit;

~~logic to~~ maintain a correct sequence of requests to start or stop performance monitoring operation by ensuring each stop request corresponds to and follows a corresponding start request for the same execution unit;

~~logic to~~ perform arbitration to acquire exclusive execution for one of ~~a plurality of request initiators~~ the multiple execution units based on predetermined criteria and in response to multiple requests to start and stop performance monitoring being received substantially simultaneously;

~~logic to~~ allocate a request to start performance monitoring operation based on the correct sequence of requests;

~~logic to~~ determine a <u>total</u> number of allocated requests to start performance monitoring operation;

~~logic to~~ initiate performance monitoring operation;

~~logic to~~ remove a request to start performance monitoring operation;

~~logic to~~ determine an active mode of performance monitoring operation; and

~~logic to~~ complete performance monitoring operation.

34.   (Currently Amended) The system of claim 33, wherein ~~logic~~ to maintain a correct sequence of requests comprises ~~logic~~ to ~~ensure that the stop request follows the start request for the same execution unit, and additional requests are ignored~~ <u>ignore any stop request that does not follow a corresponding start request for the same execution unit</u>.

35.   (Currently Amended) The system of claim 33, wherein ~~logic~~ to allocate the request comprises ~~logic~~ to indicate to the system that a request to start performance monitoring operation is pending for a specific execution unit .

36.   (Currently Amended) The system of claim 33, wherein ~~logic~~ to allocate the request and initiate performance monitoring operation is activated if a request to start performance monitoring operation was received.

37.   (Currently Amended) The system of claim 33, wherein ~~logic~~ to remove the request comprises ~~logic~~ to indicate to the system that no request to start performance monitoring operation is pending for the current execution unit.

38.   (Currently Amended)   The system of claim 33, wherein ~~logic~~ to remove the request, determine active mode, and complete performance monitoring operation is activated if a request to stop performance monitoring operation was received.

39.   (Currently Amended)   The system of claim 33, wherein ~~logic~~ to initiate performance monitoring operation comprises ~~logic~~ to program the performance monitoring unit to start collecting performance data for the execution unit that requested said operation if no other request was previously allocated.

40.   (Currently Amended) The system of claim 39, further comprising ~~logic~~ to at least one of set an initial performance value to the current value of a performance monitoring unit counter and set the initial performance value and the performance monitoring unit counter to a predefined value.

41.   (Currently Amended)   The system of claim 33, wherein ~~logic~~ to initiate performance monitoring operation further comprises ~~logic~~ to program the performance monitoring unit to start collecting performance data for the execution unit that requested said operation, in addition to performance data of other execution units which previously requested said operation if there are other requests previously allocated.

42.   (Currently Amended) The system of claim 33, wherein ~~logic~~ to determine the active mode of performance monitoring operation comprises ~~logic~~ to detect whether

programming of performance monitoring unit was performed for the execution unit that requested to stop performance monitoring operation.

43.   (Currently Amended)   The system of claim 33, wherein ~~logic~~ to complete performance monitoring operation comprises ~~logic~~ to retrieve final performance data and to program the performance monitoring unit to stop collecting of performance data if no other requests for the performance monitoring unit are allocated.

44.   (Currently Amended)   The system of claim 33, wherein ~~logic~~ to complete performance monitoring operation further comprises ~~logic~~ to program the performance monitoring unit to stop collecting performance data for the execution unit that requested said operation <u>in response to a stop request from the execution unit</u>, if there are other requests previously allocated and the performance monitoring unit was in the active mode for the current execution unit.

45.   (Currently Amended) The system of claim 44, <u>wherein the plurality of instruction further cause the processor</u> ~~further comprising logic~~ to retrieve current performance data, to set the initial performance value equal to the value retrieved or to reprogram performance monitoring unit to start counting from a predefined value and set the initial performance value equal to the predefined value.

46.   (Currently Amended) The system of claim 44, <u>wherein the plurality of instruction further cause the processor</u> ~~further comprising: logic~~ to select another execution unit; ~~logic~~ to

program the performance monitoring unit to start collecting performance data for the selected execution unit.

47.   (Currently Amended) The system of claim 46, wherein ~~logic~~ to select another execution unit comprises ~~logic~~ to select, by external means, a request previously allocated by another execution unit and to determine the execution unit that allocated said request.

48.   (Currently Amended) The system of claim 46, wherein ~~logic~~ to program the performance monitoring unit further comprises ~~logic~~ to enable performance data collection for the selected execution unit in addition to performance data of other execution units which previously requested said operation.